STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Joint Investigation by DPH and PURA of REJA's (Rainbow Springs)
Request to Cease Operations as a Water Company

DOCKET NO. 14-12-21

EXHIBIT # 2

WATER SUPPLY PLAN

ATTORNEY JAMES COLIN MULHOLLAND * T. 860-657-8131 * F. 860-659-1625 * JURIS: 102608
202 WEST ROAD, SALEM, CONNECTICUT 06420

jcolinesq@gmail.com

RAINBOW SPRINGS DIVISION
MIDDLEFIELD, CONNECTICUT

WATER SUPPLY PLAN

REJA AQUISITION CORPORATION

DECEMBER 1997

LENARD ENGINEERING, INC.

- EXHIBIT #2 -

Table of Contents

RAINBOW SPRINGS (RS) DIVISION

List of Tables

List of Figures

List of Appendix Items

Eastern Connecticut Regional Water Company

RAINBOW SPRINGS (RS) DIVISION

I. INTRODUCTION

The Rainbow Springs (RS) Division water supply system system serves eight residential customers on Lakeview Place in the Town of Middlefield, CT. Two residences each have one additional apartment.

II. COMPANY STRUCTURE AND ASSETS

Rainbow Springs Division is currently owned by REJA Acquisition Corporation (REJA). REJA is wholly owned by Mr. John Wittenzellner and Mr. Robert Wittenzellner. REJA plans to transfer ownership to ECRWC in the near future. The Rainbow Springs Division is maintained by ECRWC personnel and equipment. See Volume I for common information for all systems regarding ECRWC company structure and assets.

III. EXISTING SOURCES

A. SOURCES OF SUPPLY

The Rainbow Springs (RS) Division Water Supply system is served by one 6" well located at 20 Lakeview Place in Middlefield, CT. Well #1 is activated by a pressure sensor in the pressure tanks located adjacent to the well.

The wells are described in Table RS-1 and the text below, and the well locations are shown in Figure RS-1.

TABLE RS-1
EXISTING SOURCES

Description	Well #1
Status	Active
Year Constructed	Unknown
Inner Diameter	6"
Depth	unknown
Type	Drilled bedrock
Original Yield	10 gpm
Current Yield	10 gpm
Pump Capacity	10 gpm

- **WELL #1** is a drilled bedrock well, with an estimated safe yield of 10 gpm. The safe yield is estimated from historical operating data. The well contains a 1-1/2 HP Goulds submersible pump capable of delivering 10 gpm.

The well is located within a 75-foot radius from the nearest septic system, but water quality analyses have not detected any contamination. The Town of Middlefield is presently involved in an area-wide sewer installation project. After the project is completed, the potential source of contamination of will be removed.

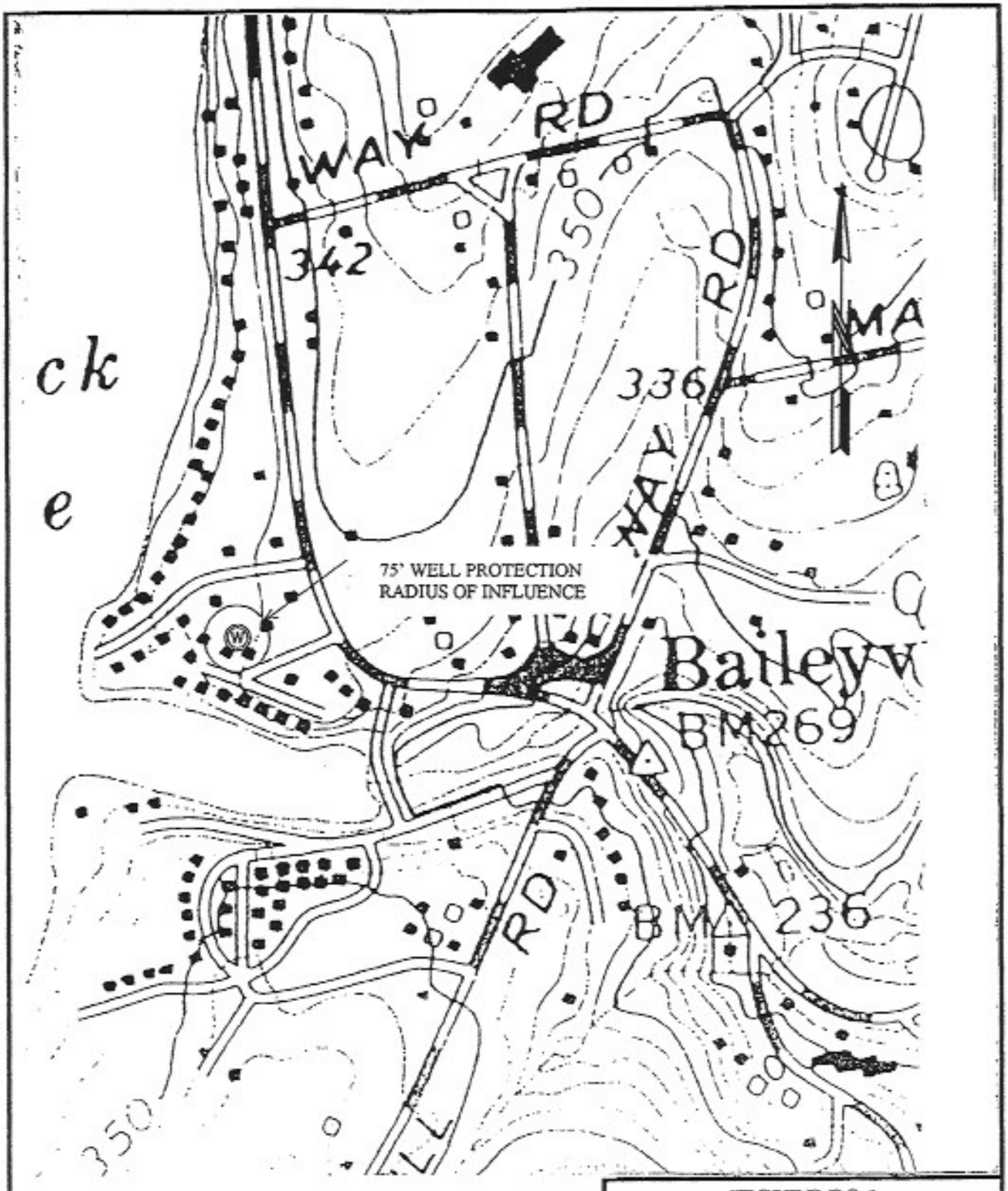


FIGURE RS-1

SOURCES OF SUPPLY

RAINBOW SPRINGS DIVISION

ECRWC

SCALE 1" = 350'

Lenard Engineering, Inc.

B. OPERATION MODE OF SOURCES

A pressure switch activates Well #1 in the two 55-gallon pressure tanks. Well #1 pumps directly to the pressure tank, which feeds the distribution system.

C. DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVERSION PERMIT

Since the average daily consumption is below 50,000 gallons, a Department of Environmental Protection (DEP) Diversion Permit is not required.

D. SAFE YIELD CALCULATIONS OF SOURCE

The estimated safe yield of Well #1 is 10 gpm based upon historic pumping records.

E. AVAILABLE WATER SUPPLY FOR THE SYSTEM

The available water supply for each well is the lesser of the following:

- Well Safe Yield
- Diversion Permitted Withdrawal, or
- Pumping Capacity, or other hydraulic restriction.

When the well yield is the limiting criteria for available supply, the available supply of a bedrock well is equal to 90% of the well yield. The available water supply for the system is calculated as follows:

1) the available supply from all wells, on-line 18 hours per day, or

2) the available supply from all wells, on-line 24 hours per day.

The available supply for the Rainbow Springs Division is restricted by safe yield, and is calculated as follows:

Condition 1 – 18 Hour Available Supply
[0.9(10) gpm] x 1080 minutes = 9,720 gpd

Condition 2 – 24-hour Available Supply
[0.9(10) gpm] x 1440 minutes = 12,960 gpd

Therefore, the available water supply for the Rainbow Springs Division is currently 9,720 gpd.

The 24-hour Available Supply with the Largest Source Off-Line is a useful criteria to evaluate which water systems are most susceptible to a source going off-line. This allows water company officials and regulators to identify critical sources.

24-hour Available Supply with Largest Source Off-Line = 0 gpm [Single source of supply]

F. MARGIN OF SAFETY

The average daily water demand for the period between January - December 1996 was 904 gpd. The margin of safety, which is the unitless ratio of supply over demand, is calculated as follows:

$$\text{Margin of Safety} = \frac{\text{18-hour Available Supply}}{\text{Average Daily Demand}} = \frac{9{,}720\ \text{gpd}}{904\ \text{gpd}} = 10.7$$

The maximum month average daily demand was 944 gpd in October, 1996. The Margin of Safety for this condition is calculated as follows:

$$\text{Margin of Safety} = \frac{\text{24-hour Available Supply}}{\text{Max. Month Average Daily Demand}} = \frac{12{,}960\ \text{gpd}}{944\ \text{gpd}} = 13.7$$

The Margin of Safety for the 24-hour Available Supply with the Largest Source Off-Line condition is calculated using the average daily water demand as follows:

$$\text{Margin of Safety} = \frac{\text{18-hour Available Supply}}{\text{Average Daily Demand}} = \frac{9{,}720\ \text{gpd}}{904\ \text{gpd}} = 10.7$$

G. INTERCONNECTIONS

There are no interconnections with other water utilities. However, this system may connect to the Lake Beseck Division in the near future.

H. NEW SOURCE FEASIBILITY

There is adequate area around the existing wells to install an additional well. However, the Rainbow Springs Division has an abundant water supply and the only need for an additional source is to provide system redundancy.

IV. EXISTING SYSTEM PERFORMANCE

A. SYSTEM DESCRIPTION

1. PUMPING STATION FACILITIES

The Well #1 pumping station consists of a building which houses the well, two 55-gallon pressure tanks, and the system controls.

2. WELL PUMPS

Well #1 has a 1-1/2 HP Goulds submersible pump rated for 10 gpm.

3. STORAGE

There are two steel 55-gallon, pressure tanks. The tanks were installed in 1996 and are in good condition.

4. TRANSFER PUMPS

The system does not include any transfer pumps at this time.

5. TREATMENT

The water supply does not require treatment.

6. DISTRIBUTION SYSTEM

The distribution system consists of approximately 100 feet of 4" C-900 PVC pipe.

Each customer has a ½"-1" galvanized steel or copper service line with an individual shut off. The system has hydrants that are used to flush the water mains. A summary of the existing water main is presented in Table RS-2 and a distribution system map is shown in Figure RS-2.

TABLE RS-2

DISTRIBUTION SYSTEM

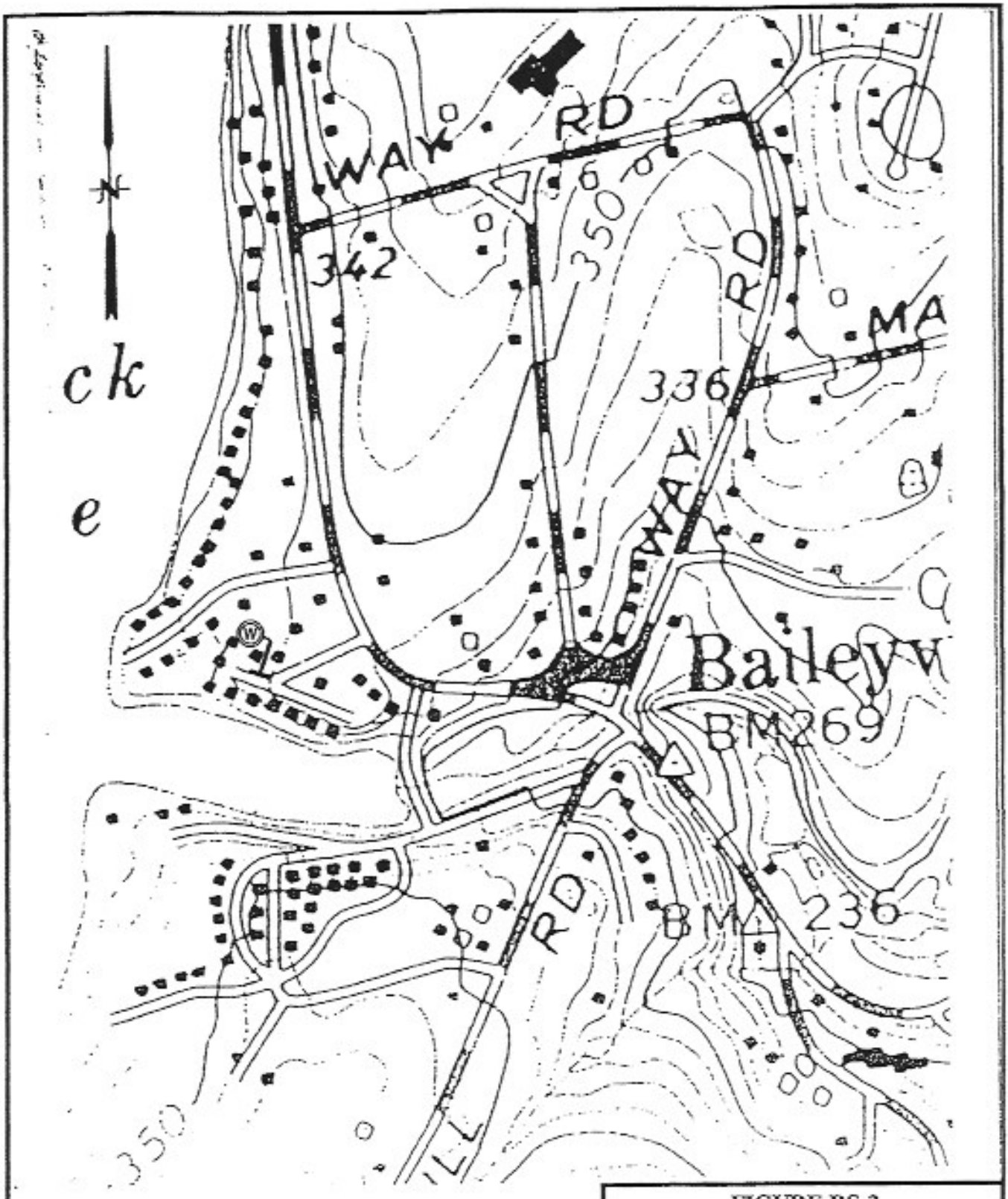
Size	Description	Unit	Quantity	Year Installed	"C" Factor
4"	C-900 PVC	L.F.	100	1995	Good
		Total:	**100**		

7. EMERGENCY POWER

The system has an external hook-up for a portable generator to operate the water system.

8. SYSTEM OPERATION

Under present conditions, Well #1 is activated by a pressure switch in the pressure tanks.



— 4" PVC Water Mains

FIGURE RS-2

DISTRIBUTION SYSTEM MAP

RAINBOW SPRINGS DIVISION

ECRWC

SCALE 1" = 0'

Lenard Engineering, Inc.

B. OPERATIONS AND MAINTENANCE PROGRAM

The routine operation procedure is expressed in the division station log, which is specific to the installation of the system. A copy of a typical station log is attached in Volume I.

An operator visits the pump stations twice each week. The tasks and observations indicated by the log are completed. The operator is cognizant of normal conditions. Variations are reported by radio and corrective actions commence.

1. MAINTENANCE OF WELLS

A periodic maintenance program is kept. The wells are surged, jetted, and cleaned with chemicals as special conditions warrant.

2. MAINTENANCE OF PUMPING EQUIPMENT

Pumping equipment includes the well pump, the electrical installation, pneumatic tanks, air compressor, pump house piping, production meter and structure. Specific equipment is maintained in accordance with manufacturer's instructions. The electrical installation is inspected and cleaned annually. Painting and preservation of tanks, piping and structures is undertaken when needed. Replacement parts are stocked by ECRWC.

3. MAINTENANCE OF DISTRIBUTION SYSTEM

Water mains and service breaks are repaired expeditiously using ECRWC personnel and excavating contractors.

Valves are maintained at grade level and cleaned of debris. A stock of valve box risers and covers is maintained. Valves are exercised on a time available basis. Periodic distribution system flushing is practiced.

4. CROSS-CONNECTION CONTROL

There are neither other utilities nor sewerage systems in this area. Possible connections with individual wells are monitored to the best of ECRWC's ability.

5. SYSTEM FLUSHING

The system is flushed periodically to improve the water quality of the system.

C. WATER QUALITY DATA

Water quality sampling is completed in accordance with Public Health Code Section 19-13-B102. Water quality data is summarized from 1993 - 1997 in Appendix A.

The quality of the water at the Rainbow Springs Division meets all of the public drinking water standards mandated in Pubic Health Code Regulation 19-13-B102(e) and SDWA.

All other testing performed to date since ECRWC obtained ownership has met with the standards of the SDWA.

D. DESIGN STANDARDS

ECRWC design standards are included in Volume I.

V. LAND USE AND OWNERSHIP

A. DESCRIPTION OF LAND USE PATTERNS

The Town of Middlefield is located in Middlesex County and covers a 13.3 square mile area. Current zoning regulations, which are shown in Figure RS-3, govern land use patterns in Middlefield.

The Rainbow Springs Division water service area is zoned HD Residential in the Town of Middlefield. The minimum lot size and maximum lot coverage are ½ acre and 25%, respectively.

The present land use of the service area is for residential housing. The Rainbow Springs Division water system has sufficient capacity to expand its service to additional adjacent property. The land use is compatible for the location of well sites.

B. WATER DEPARTMENT LAND

The ECRWC Rainbow Springs Division holds easements for the land on which the wells, pressure tanks, and pump house are located. The restricted land use protects the water source from possible sources of contamination.

C. SOURCE PROTECTION AND LAND ACQUISITION

ECRWC's source protection program is based upon frequent interaction with adjacent property owners and customers within each of ECRWC's divisions. Adjacent property owners are customers of the water systems and frequently see ECRWC personnel monitoring the systems. The adjacent property owners have been instructed about potential sources of pollution (household chemicals, pesticides, oil, gasoline, etc.) and have a 24-hour phone number to report any spills or suspicious behavior. Storm drains are marked to remind residents not to dispose of oil or other chemicals. The water systems service residential areas which use a neighborhood watch approach to protect their water supply and report any potential sources of pollution.

ECRWC officers monitor local development proposals and work closely with local planning officials to ensure sources are protected.

The land use is sufficient to protect the water supply from potential sources of contamination. The water quality results indicate that the land use has not effected the water supply.

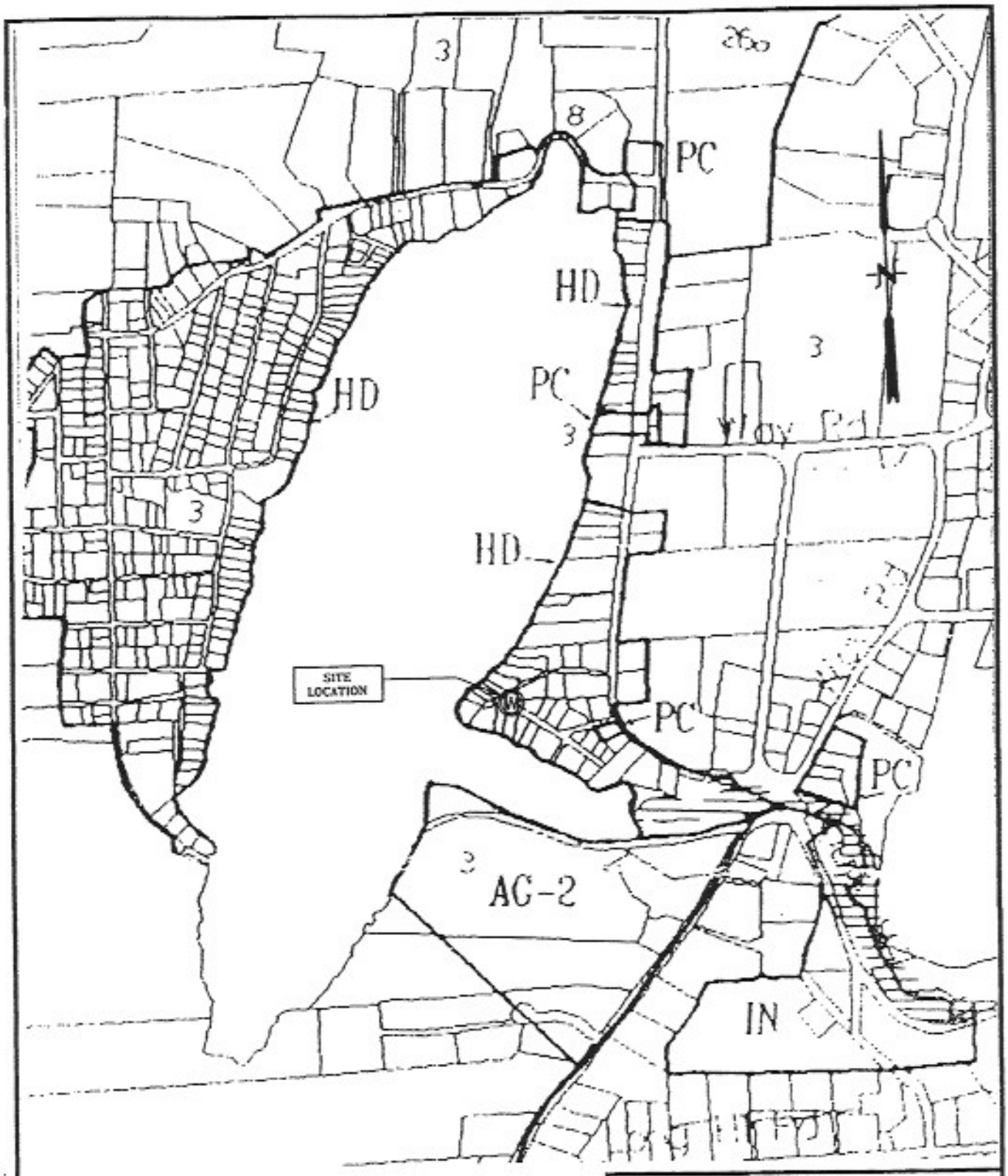


FIGURE RS-3

ZONING MAPS

RAINBOW SPRINGS DIVISION
ECRWC

Lenard Engineering, Inc.

VI. WATER SERVICE AREA

A. EXISTING WATER SERVICE AREA

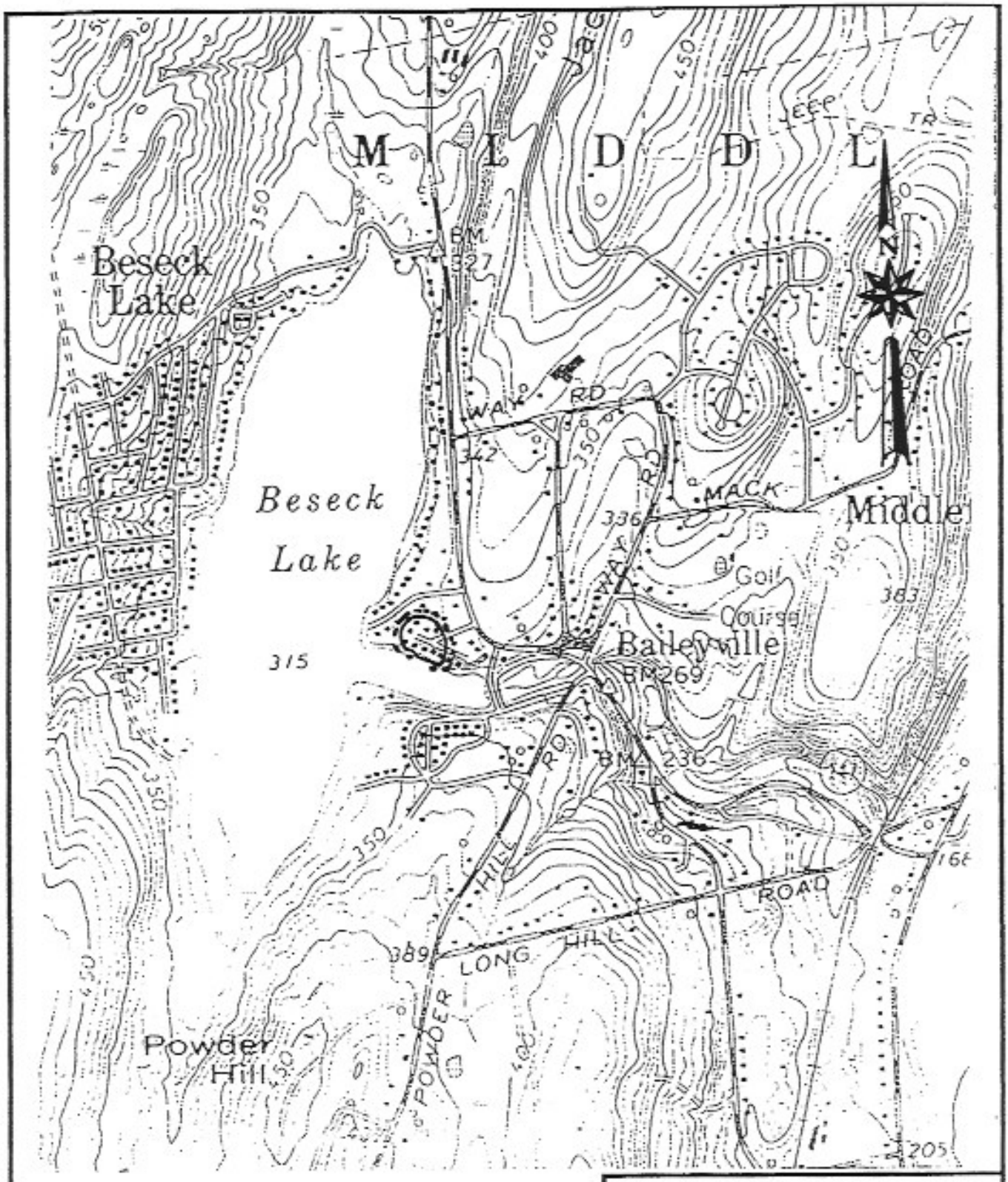
A map of the existing ECRWC Rainbow Springs Division water service area is presented in Figure RS-4. There are presently no interconnections with other water utilities.

B. FUTURE WATER SERVICE AREA

The water system was designed to serve the Rainbow Springs development. The water demands for the system will grow as the system is expanded to provide service to adjacent property, if required. However, adjacent properties are currently served by private wells. The existing and future water service areas are shown on Figure RS-4.

C. SERVICE AREA AGREEMENTS

The South Central Public Water Supply Management Area includes the towns of Portland, Middlefield, and Durham. The Rivercrest, Lake Beseck, Rainbow Springs, Durham Center, Durham Elderly, and Lexington Place divisions provide water service in these towns subject to the Water Utility Coordinating Committee (WUCC). ECRWC Divisions have an exclusive water service area in the towns of Middlefield and Durham. The final exclusive water service area boundaries are shown by Plate 1B in Volume IV General Company Information.



Existing Service Area

Future Service Area

Lenard Engineering, Inc.

FIGURE RS-4

WATER SERVICE AREA

RAINBOW SPRINGS DIVISION

ECRWC

SCALE 1" = 1,000'

VII. POPULATION AND WATER CONSUMPTION TRENDS

A. HISTORIC HOUSING AND POPULATION DATA

Table RS-3 shows population statistics for the Town of Middlefield, which were obtained in part from the Connecticut Interim Long Range Population Projections, Series 91.2 and Series 95.2, Connecticut State Data Center, Office of Policy and Management (OPM).

TABLE RS-3
POPULATION STATISTICS

Year	Middlefield Population	Population per Housing Unit	Number of Residential Services	Estimated Residential Service Population
1980	3,796	2.56	NA	NA
1990	3,925	2.56	NA	NA
1996	3,960	2.56	8	21
2000*	3,980	2.56	8	21
2010*	4,040	2.56	8	21
2040*	4,273	2.56	8	21

** Projected*

In our estimation, the 5, 20, and 50-year population projections by the OPM, presented in the table above, are not applicable to the small area of town for which this plan is prepared. Estimated residential service population projections are based on proposed development plans for the area, which are more specific than estimates based on town-wide population projections.

B. SERVICE RATIO

Service ratio is defined by the DPH as population served by the water company within a town, divided by the total town population. The estimated service ratios (as of 1996) are as follows:

$$\text{Service Ratio} = \frac{21 \text{ people served}}{3{,}960 \text{ total population}} = 0.53\%$$

C. HISTORIC WATER DEMAND

The water consumption table (Table RS-4) and the associated graph (Figure RS-5) show water consumption data for the years 1993-1997. Records show that water demand has remained nearly constant.

TABLE RS-4

Water Consumption Summary (Gallons/Day)
Years 1993-1997

Rainbow Springs Division

EASTERN CONNECTICUT REGIONAL WATER AUTHORITY

Year	Total Customers	Residential Service Population	Number of Water Service Users					Non-Revenue Consumption				Average Day (AD)	Peak Day (PD)	Peak Month Avg. Day (PMAD)	Peak Day / Avg. Day	PMAD / Avg. Day
			Residential	Commercial	Industrial	Public	Other	Accounted For	Unaccounted For	Total	% of Total					
1993*	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	N/A**	N/A	N/A**	N/A	N/A
1994	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	N/A**	N/A	N/A**	N/A	N/A
1995	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	N/A**	N/A	N/A**	N/A	N/A
1996	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	804	N/A	944	N/A	1.04
1997*	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	965	N/A	1,187	N/A	1.23
PROJECTIONS																
2000	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	965	N/A	1,284	N/A	1.33
2010	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	965	N/A	1,284	N/A	1.33
2040	8	21	8	0	0	0	0	N/A	N/A	N/A	N/A	965	N/A	1,284	N/A	1.33

*1993 and 1997 are based on partial-year records.

** Average and maximum water demands not available prior to September 1996.

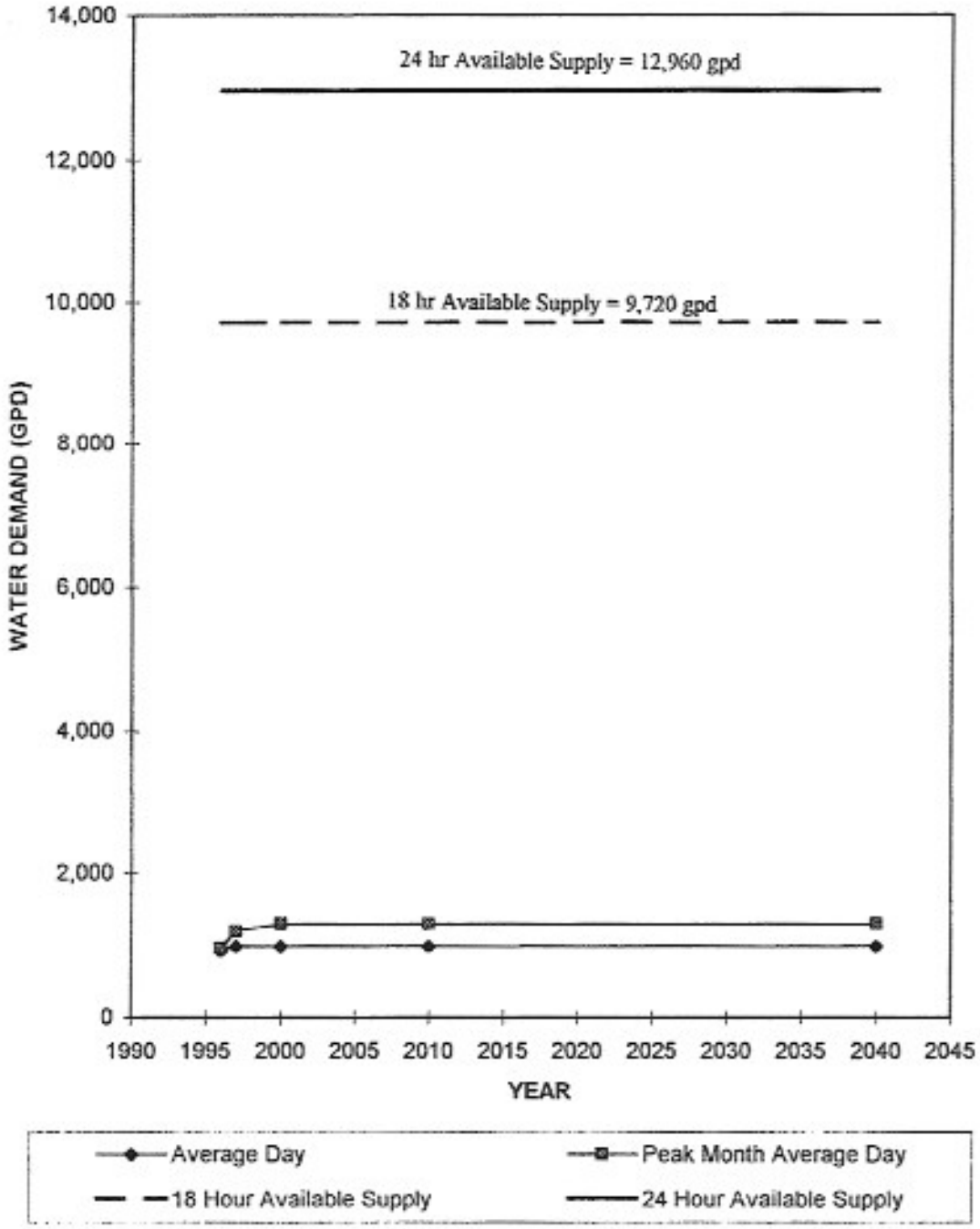
TABLE RS-4

WATER CONSUMPTION SUMMARY

RAINBOW SPRINGS DIVISION
ECRWC

Lenard Engineering, Inc.

FIGURE RS-5
Water Demand Projections
Rainbow Springs Division - ECRWC



D. SEASONAL FLUCTUATION OF WATER DEMANDS

A water usage graph, for the period between January - December 1996, is included as Figure RS-6. For that period, the ratio of peak month average day to average day was 1.04. This is less than normal for residential water systems in Connecticut. ECRWC has promoted sensible water use practices.

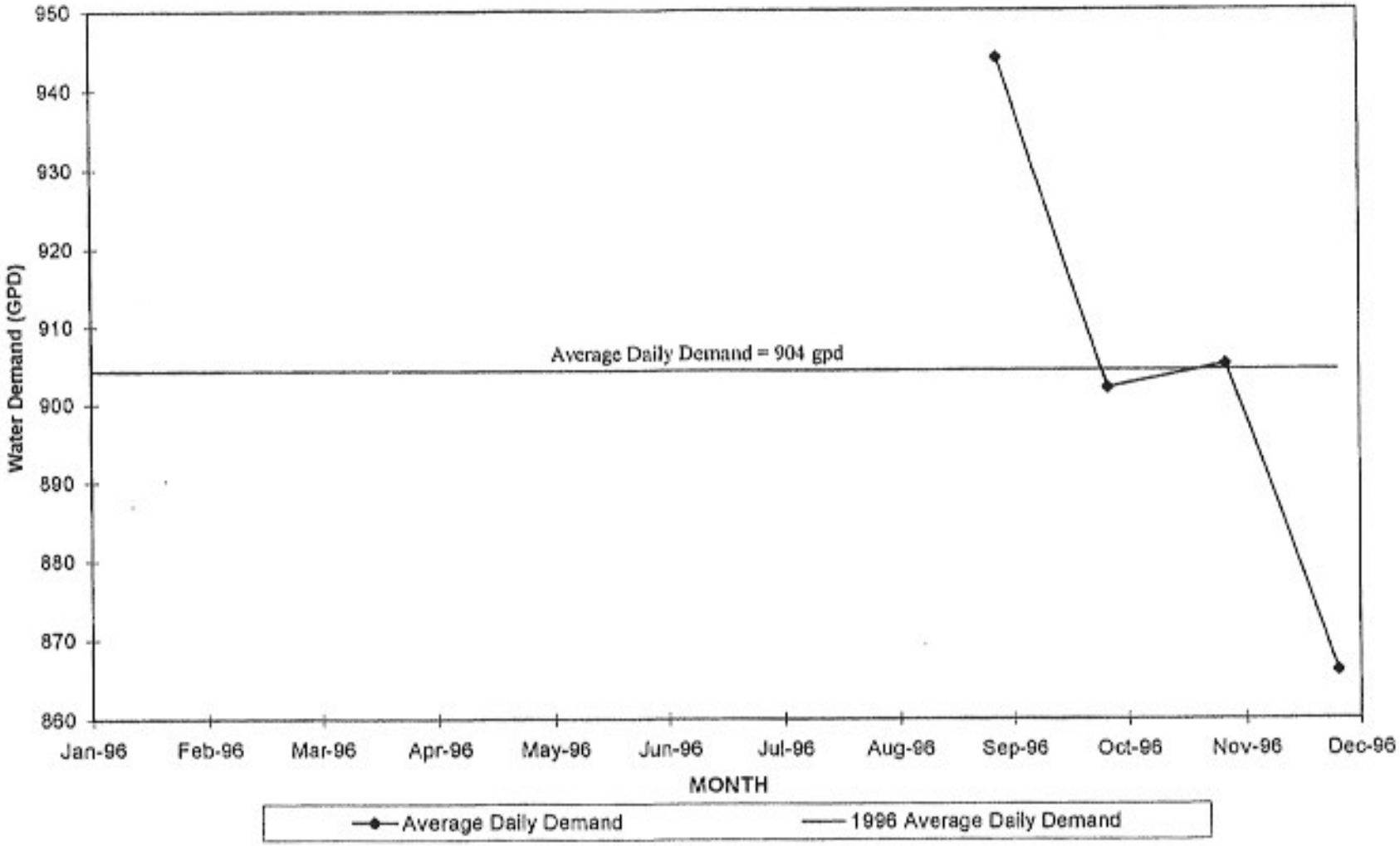
E. PROJECTED WATER DEMANDS

Projected water demands are also shown on Table RS-4 and Figure RS-5. These demands project considerable system growth over the 50-year planning period.

F. WATER CONSERVATION PROGRAM

A detailed "Water Conservation Plan," written in accordance with the DEP/DPUC/DPH/OPM Memorandum of Understanding guidance document, is enclosed in Volume I.

FIGURE RS-6
1996 AVERAGE DAILY DEMAND



VIII. LIST OF DEFICIENCIES AND ASSESSMENT OF ALTERNATIVES

A. LIST OF SYSTEM DEFICIENCIES

The need to develop a second water supply is the only deficiency of the Rainbow Springs Division. Many system improvements have been performed and the system is in excellent condition. The system provides a large source of supply, margin of safety, and easily meets average and peak daily demands.

B. SHORT TERM IMPROVEMENTS

The ECRWC Capital Improvement Plan includes the following system improvements. Routine maintenance will be performed to preserve the system performance.

Improvement Description	Anticipated Completion Date	Estimated Cost
Enhanced Source Protection	1999	$1,000
Replace Service Lines	2000	$10,000
Construct second source of supply	2003	$10,000

C. LONG-TERM IMPROVEMENTS

ECRWC will replace pumps, storage tanks, and distribution piping as conditions warrant. Additional sources of supply will be constructed as needed. Routine maintenance will be performed to preserve the system performance.

IX. FINANCIAL PLAN

A master financial plan for all of the ECRWC divisions is included in Appendix A of Volume I.

X. EMERGENCY CONTINGENCY PLAN

An Emergency Contingency Plan for all ECRWC divisions and REJA's Rainbow Springs Division is enclosed in Appendix B of Volume I.

ANALYTICAL WATER TEST of TOLLAND, INC.
84 WALBRIDGE HILL ROAD
TOLLAND, CONNECTICUT 06084
(203) 871-2529

BRENDA A. FALLON
Laboratory Director

March 14, 1993

Mr. John Wittenzellner
Associated Water Services, Inc.
P. O. Box 43
Stafford Springs, Connecticut 06076

Dear Mr. Wittenzellner:

The following is a report of the water sample taken by your personnel on February 24, 1993, from Rainbow Springs, #16 Lakeview Place, Middlefield, Connecticut.

Parameter: Volatile Organics in Water
Method Reference: EPA 502.2

Component Name	Concentration, ug/l	Component MDL, ug/l
Benzene	<0.50	0.5
Bromobenzene	<0.50	0.5
Bromochloromethane	<0.50	0.5
Bromodichloromethane	<0.50	0.5
Bromoform	<0.50	0.5
Bromomethane	<0.50	0.5
n-Butylbenzene	<0.50	0.5
sec-Butylbenzene	<0.50	0.5
tert-Butylbenzene	<0.50	0.5
Carbon Tetrachloride	<0.50	0.5
Chlorobenzene	<0.50	0.5
Chloroethane	<0.50	0.5
Chloroform	<0.50	0.5
Cloromethane	<0.50	0.5
2-Chlorotoluene	<0.50	0.5
4-Chlorotoluene	<0.50	0.5
Dibromochloromethane	<0.50	0.5
1,2-Dibromo-3-chloropropane	<0.02	0.02
1,2-Dibromoethane	<0.02	0.02
Dibromomethane	<0.50	0.5
1,2-Dichlorobenzene	<0.50	0.5
1,3-Dichlorobenzene	<0.50	0.5
1,4-Dichlorobenzene	<0.50	0.5
Dichlorodifluoromethane	<0.50	0.5
1,1-Dichloroethane	<0.50	0.5
1,2-Dichloroethane	<0.50	0.5
1,1-Dichloroethene	<0.50	0.5
cis-1,2-Dichloroethene	<0.50	0.5
trans-1,2-Dichloroethene	<0.50	0.5
1,2-Dichloropropane	<0.50	0.5
1,3-Dichloropropane	<0.50	0.5
2,2-Dichloropropane	<0.50	0.5

Parameter: Volatile Organics in Water (continued)
Method Reference: EPA 502.2

Component Name	Concentration, ug/l	Component MDL, ug/l
1,1-Dichloropropene	<0.50	0.5
cis-1,3-Dichloropropene	<0.50	0.5
trans-1,3-Dichloropropene	<0.50	0.5
Ethylbenzene	<0.50	0.5
Hexachlorobutadiene	<0.50	0.5
Isopropylbenzene	<0.50	0.5
4-Isopropyltoluene	<0.50	0.5
Methylene Chloride	<0.50	0.5
Napthalene	<0.50	0.5
Propylbenzene	<0.50	0.5
Styrene	<0.50	0.5
1,1,1,2-Tetrachloroethane	<0.50	0.5
1,1,2,2-Tetrachloroethane	<0.50	0.5
Tetrachloroethene	<0.50	0.5
Toluene	<0.50	0.5
1,2,3-Trichlorobenzene	<0.50	0.5
1,2,4-Trichlorobenzene	<0.50	0.5
1,1,1-Trichloroethane	<0.50	0.5
1,1,2-Trichloroethane	<0.50	0.5
Trichloroethene	<0.50	0.5
Trichlorofluoromethane	<0.50	0.5
1,2,3-Trichloropropane	<0.50	0.5
1,2,4-Trimethylbenzene	<0.50	0.5
1,3,5-Trimethylbenzene	<0.50	0.5
Vinyl Chloride	<0.50	0.5
p- and m- Xylenes	<0.50	0.5
o-Xylenes	<0.50	0.5

Please let us know if there are any questions concerning this analysis.

At your service,

Brenda Fallon

Mrs. Brenda A. Fallon
Laboratory Director

BRENDA FALLON
Laboratory Director

BRENDA FALLON WATER ANALYSIS

84 WALBRIDGE HILL ROAD
TOLLAND, CONNECTICUT 06084

(203) 871-2529

September 19, 1993

Associated Water Service
P. 0. Box 43
Stafford Springs, Connecticut 06076

Dear sirs:

The following is a report of the water analysis, sample date of June 8, 1993, from Lot 17 Lake View Place Road, Lake View Place, Middlefield, Connecticut.

Parameter: Metals in Water

Arsenic	<	0.001	mg/l
Total Cyanide	<	0.01	mg/l
Barium	<	0.01	mg/l
Cadmium	<	0.001	mg/l
Chromium		0.02	mg/l
Lead	<	0.001	mg/l
Mercury	<	0.001	mg/l
Nickel	<	0.001	mg/l
Selenium	<	0.001	mg/l
Silver	<	0.001	mg/l
Copper		0.01	mg/l
Fluoride	<	0.1	mg/l

The water tested within the potability limits of Connecticut and the Federal Environmental Protection Agency (EPA) for the tested parameters. Please let us know is there are any questions concerning this analysis.

At your service,

Brenda Fallon

Mrs. Brenda A. Fallon
Laboratory Director

(203) 871-2529 Laboratory PH 0525

Analytical Water Test of Tolland, Inc.
84 Walbridge Hill Road
Tolland, Connecticut 06084

December 2, 1994

Client: Associated Water Services, Inc.
P. O. Box 491
Stafford Springs, Connecticut 06076

Sample Origin: Lake View Place
Middlefield, Connecticut

Sampling Point: Unit 17

Date Collected: November 16, 1994

Date Received: November 16, 1994

Parameter: Volatile Organics in Water
Method Reference: EPA 502.2

Component Name	Concentration, ug/l	Component MDL, ug/l
Benzene	<0.50	0.5
Bromobenzene	<0.50	0.5
Bromochloromethane	<0.50	0.5
Bromodichloromethane	<0.50	0.5
Bromoform	<0.50	0.5
Bromomethane	<0.50	0.5
n-Butylbenzene	<0.50	0.5
sec-Butylbenzene	<0.50	0.5
tert-Butylbenzene	<0.50	0.5
Carbon Tetrachloride	<0.50	0.5
Chlorobenzene	<0.50	0.5
Chloroethane	<0.50	0.5
Chloroform	<0.50	0.5
Cloromethane	<0.50	0.5
2-Chlorotoluene	<0.50	0.5
4-Chlorotoluene	<0.50	0.5
Dibromochloromethane	<0.50	0.5
1,2-Dibromo-3-chloropropane	<0.02	0.02
1,2-Dibromoethane	<0.02	0.02
Dibromomethane	<0.50	0.5
1,2-Dichlorobenzene	<0.50	0.5
1,3-Dichlorobenzene	<0.50	0.5
1,4-Dichlorobenzene	<0.50	0.5
Dichlorodifluoromethane	<0.50	0.5
1,1-Dichloroethane	<0.50	0.5
1,2-Dichloroethane	<0.50	0.5

Component Name	Concentration, ug/l	Component MDL, ug/l
1,1-Dichloroethene	<0.50	0.5
cis-1,2-Dichloroethene	<0.50	0.5
trans-1,2-Dichloroethene	<0.50	0.5
1,2-Dichloropropane	<0.50	0.5
1,3-Dichloropropane	<0.50	0.5
2,2-Dichloropropane	<0.50	0.5
1,1-Dichloropropene	<0.50	0.5
cis-1,3-Dichloropropene	<0.50	0.5
trans-1,3-Dichloropropene	<0.50	0.5
Ethylbenzene	<0.50	0.5
Hexachlorobutadiene	<0.50	0.5
Isopropylbenzene	<0.50	0.5
4-Isopropyltoluene	<0.50	0.5
Methylene Chloride	<0.50	0.5
Methyl Tert butyl Ether	<0.50	0.5
Napthalene	<0.50	0.5
Propylbenzene	<0.50	0.5
Styrene	<0.50	0.5
1,1,1,2-Tetrachloroethane	<0.50	0.5
1,1,2,2-Tetrachloroethane	<0.50	0.5
Tetrachloroethene	<0.50	0.5
Toluene	<0.50	0.5
1,2,3-Trichlorobenzene	<0.50	0.5
1,2,4-Trichlorobenzene	<0.50	0.5
1,1,1-Trichloroethane	<0.50	0.5
1,1,2-Trichloroethane	<0.50	0.5
Trichloroethene	<0.50	0.5
Trichlorofluoromethane	<0.50	0.5
1,2,3-Trichloropropane	<0.50	0.5
1,2,3-Trimethylbenzene	<0.50	0.5
1,2,4-Trimethylbenzene	<0.50	0.5
1,3,5-Trimethylbenzene	<0.50	0.5
Vinyl Chloride	<0.50	0.5
p- and m- Xylenes	<0.50	0.5
o-Xylenes	<0.50	0.5

Please let us know if there are any questions concerning this analysis.

At your service,

Brenda Fallon

Mrs. Brenda A. Fallon
Laboratory Director

Northeast Laboratories, Inc.
129 Mill Street
Berlin, Connecticut 06037-9990

CT Certification: PH-0606
EPA Certification: CT-024
USDA Certification: 0976

Phase II Regulated Synthetic Organic Chemicals

REPORT TO:
ASSOCIATED WATER SERVICE, INC.
22 BUCKLEY HIGHWAY
P.O. BOX 491
STRAFFORD SPRINGS CT 06076

FAX #: 684-9725

COLLECTED BY: AWS, Inc.
DATE RECEIVED @ LAB: 5/10/94
DATE(S) TESTED: 5/20 - 7/20/94

REPORT NO.: 94-0737
REPORT DATE: 7/26/94

COMPOSITE OF:

SYSTEM #:	1	2	3	4	5
SYSTEM NAME:	[redacted]	Coventry Housing	Coventry Housing	Sunset Apts.	Lake Beseck
SAMPLE LOCATION:	Pump Room	System #1	System #2	Pump Room	Pump House
DATE COLLECTED:	5/3/94	5/3/94	5/3/94	5/3/94	5/3/94

(all results expressed in micrograms per liter)

ANALYTE	METHOD	RESULT	MINIMUM DETECTABLE LEVEL
Alachlor	505/508/525	ND	0.7
Atrazine	505/508/525	ND	0.3
Carbofuran	531.1	ND	0.4
Chlordane	505/508	ND	0.2
Dibromochloropropane	504	ND	0.02
2,4-D	515/555	ND	1.3
Ethylene Dibromide	504	ND	0.02
Heptachlor	505/508	ND	0.04
Heptachlor Epoxide	505/508	ND	0.06
Lindane	505/508	ND	0.07
Methoxychlor	505/508	ND	0.80
Pentachlorophenol	515/525/555	ND	0.30
Polychlorinated Biphenyls (as Decachlorobiphenyl)	505/508	ND	0.25
Toxaphene	505/508	ND	1.0
2,4,5 - TP (Silvex)	515/555	ND	0.70

Analyses performed at PH0606 and at PH0440

D = None Detected
..esults based on sample(s) submitted: 5/10/94

Northeast Laboratories, Inc.
129 Mill Street
Berlin, Connecticut 06037-9990

CT Certification: PH-0606
EPA Certification: CT-024
USDA Certification: 0976

CERTIFICATE OF ASBESTOS ANALYSIS

(METHOD: TRANSMISSION ELECTRON MICROSCOPY --T.E.M.)

REPORT TO:
ASSOCIATED WATER SERVICE, INC.
22 BUCKLEY HIGHWAY
P.O. BOX 491
STAFFORD SPRINGS CT 06076

ATTN: JIM OUELLETTE
FAX #: (203) 684-9725

COLLECTED BY: AWS, Inc.
DATE RECEIVED @ LAB: 5/24/95
DATE(S) TESTED: 7/17/95

REPORT DATE: 7/25/95

COMPOSITE OF:

SYSTEM #:	1	2	3	4	5
SYSTEM NAME:	College Park Mansfield CT	Somers Elderly Housing Somers CT	Lake View Village Middlefield CT	Happy Acres Apts. Middlefield CT	Woodland Summit Tolland CT
SAMPLE LOCATION:	#11-A	Not Given	#17	#11-13	#130 Willie Circle
DATE COLLECTED:	5/12/95	5/12/95	5/12/95	5/12/95	5/12/95

BATCH #:	E7714
VOLTAGE:	80 KV
MAGNIFICATION:	17,640
LAB ID#:	W13300
FIELD ID NUMBER:	25NE-3
VOLUME (LITERS):	.1000
ASBESTOS TOTAL:	.4
(*) CONC. MFL >10 um:	< .35
ANALYTICAL SENSITIVITY.:	.0959
# FIBERS:	4.
# FIBERS > 10 um:	0

(*) STATE OF CONNECTICUT MAXIMUM CONTAMINANT LEVEL IS: 7 MILLION FIBERS PER LITER

Tested By: CT Lab #: PH-0143

MFL = MILLION FIBERS PER LITER
NAD = NO ASBESTOS DETECTED
UM = MICROMETERS
> = GREATER THAN
< = LESS THAN

Results are based upon samples submitted: 5/24/95

William W Ullmann, Ph.D.
TECHNICAL DIRECTOR

(203) 871-2529 Laboratory PH 0525

Analytical Water Test of Tolland, Inc.
84 Walbridge Hill Road
Tolland, Connecticut 06084

August 3, 1995

Client: Associated Water Services, Inc.
P. O. Box 491
Stafford Springs, Connecticut 06076

Sample Origin: Lake View Place
Middlefield, Connecticut

Sampling Point: Unit 17 Outside Tap

Date Collected: May 23, 1995

Date Received: May 23, 1995

Parameter: Volatile Organics in Water
Method Reference: EPA 502.2

Component Name	Concentration, ug/l	Component MDL, ug/l
Benzene	<0.50	0.5
Bromobenzene	<0.50	0.5
Bromodichloromethane	<0.50	0.5
Bromoform	<0.50	0.5
Bromomethane	<0.50	0.5
n-Butylbenzene	<0.50	0.5
Carbon Tetrachloride	<0.50	0.5
Chlorobenzene	<0.50	0.5
Chloroethane	<0.50	0.5
Chloroform	<0.50	0.5
Cloromethane	<0.50	0.5
2-Chlorotoluene	<0.50	0.5
4-Chlorotoluene	<0.50	0.5
Dibromochloromethane	<0.50	0.5
Dibromomethane	<0.50	0.5
1,2-Dichlorobenzene	<0.50	0.5
1,3-Dichlorobenzene	<0.50	0.5
1,4-Dichlorobenzene	<0.50	0.5
1,1-Dichloroethane	<0.50	0.5
1,2-Dichloroethane	<0.50	0.5
1,1-Dichloroethene	<0.50	0.5
cis-1,2-Dichloroethene	<0.50	0.5
trans-1,2-Dichloroethene	<0.50	0.5
1,2-Dichloropropane	<0.50	0.5

EPA Method 502.2 Analysis of Lake View Place
August 3, 1995

Component Name	Concentration, ug/l	Component MDL, ug/l
1,3-Dichloropropane	<0.50	0.5
2,2-Dichloropropane	<0.50	0.5
1,1-Dichloropropene	<0.50	0.5
cis-1,3-Dichloropropene	<0.50	0.5
trans-1,3-Dichloropropene	<0.50	0.5
Ethylbenzene	<0.50	0.5
Methylene Chloride	<0.50	0.5
Methyl Tert butyl Ether	<0.50	0.5
Napthalene	<0.50	0.5
n-propylbenzene	<0.50	0.5
Styrene	<0.50	0.5
1,1,1,2-Tetrachloroethane	<0.50	0.5
1,1,2,2-Tetrachloroethane	<0.50	0.5
Tetrachloroethene	<0.50	0.5
Toluene	<0.50	0.5
1,2,4-Trichlorobenzene	<0.50	0.5
1,1,1-Trichloroethane	<0.50	0.5
1,1,2-Trichloroethane	<0.50	0.5
Trichloroethene	<0.50	0.5
1,2,3-Trichloropropane	<0.50	0.5
1,2,4-Trimethylbenzene	<0.50	0.5
1,3,5-Trimethylbenzene	<0.50	0.5
Vinyl Chloride	<0.50	0.5
p- and m- Xylenes	<0.50	0.5
o-Xylenes	<0.50	0.5

Please let us know if there are any questions concerning this analysis.

At your service,

Brenda Fallon

Mrs. Brenda A. Fallon
Laboratory Director

Northeast Laboratories, Inc.
129 Mill Street
Berlin, Connecticut 06037-9990

CT Certification: PH-0606
EPA Certification: CT-024
USDA Certification: 0976

INORGANIC CHEMICALS

REPORT TO:
Associated Water Service
22 Buckley Highway
P.O. Box 491
Stafford Springs, CT 06076

Atn: Jim Ouellette

DATE SAMPLE COLLECTED: 1/22/96
COLLECTED BY: Mike
DATE RECEIVED @ LAB: 1/23/96

REPORT DATE: 3/19/96

SAMPLE DESCRIPTION: WATER

SAMPLE LOCATION: LAKEVIEW PLACE, MIDDLEFIELD, CT

SAMPLE POINT: SITE #17

PARAMETER:	RESULT (mg/L)
• ANTIMONY	< 0.001
• ARSENIC	0.009
• BARIUM	0.052
• BERYLLIUM	< 0.001
• CADMIUM	< 0.001
• CHROMIUM	< 0.001
• MERCURY	< 0.001
• NICKEL	< 0.1
• SELENIUM	< 0.010
• SILVER	< 0.03
• THALLIUM	< 0.001
• LEAD	0.008
• COPPER	< 0.05
• SODIUM	9

William W Tillmann, Ph.D.
TECHNICAL DIRECTOR

Northeast Laboratories, Inc.
129 Mill Street
Berlin, Connecticut 06037-9990

CT Certification: PH-0606
EPA Certification: CT-024
USDA Certification: 0976

INORGANIC CHEMICALS

REPORT TO:
Associated Water Service
22 Buckley Highway
P.O. Box 491
Stafford Springs, CT 06076

Atn: Jim Ouellette

DATE SAMPLE COLLECTED: 1/22/96
COLLECTED BY: Mike
DATE RECEIVED @ LAB: 1/23/96

REPORT DATE: 3/19/96

SAMPLE DESCRIPTION: WATER

SAMPLE LOCATION: LAKEVIEW PLACE, MIDDLEFIELD, CT

SAMPLE POINT: SITE # 17

PARAMETER:	RESULT (mg/L)
• CYANIDE	< 0.01
• FLUORIDE	0.13
• NITRATE NITROGEN	1.9
• NITRITE NITROGEN	0.002
• NITRATE NITROGEN plus NITRITE NITROGEN	1.9
• SULFATE	78.8
• CHLORIDE	8
• TOTAL DISSOLVED SOLIDS	54

Alan C. Johnson

STATE OF CONNECTICUT
Dept. of Public Health
Bureau of Laboratories Services
10 Clinton St.
P.O. Box 1689
Hartford, CT 06144
TELEPHONE: (860) 566-5063

ID:	ACCESSION NO.	ACCOUNT NO.	AGE	S		PAGE
NR:	26005565	100189	0			1

INFORMATION

134MIDDLEFIELD
ECRWC-LAKE VIEW PL

MIDDLEFIELD CT 06455

PUBLIC WATER
ASSOCIATED WATER SERVICES,INC.
P.O. BOX 491

STAFFORD SPRINGS CT 06076

COLLECTED	RECEIVED	REPORTED
04/16/96 12:00	05/01/96 14:59	05/14/96 10:27

PORT

FINAL REPORT

COMMENT

TEST(S)	RESULT(S)
	RES, WELL OR SPRING NAME: WELL 7 COLLECTOR: STU HAWKINS
* UNITS: PCI/L GROSS ALPHA WATER	2.70*-1.35 PCI/L

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH AND ADDICTION SERVICES

DATE: June 21, 1995

NAME: Jim Ouellet

TOWN: Middlefield

ADDRESS: P.O. Box 153
Stafford Springs, CT 06076

UTILITY: Rainbow Springs

PROJECT IDENTIFICATION: Pumphouse Rehab.

DATE OF SUBMISSION: June 13, 1995

TYPE OF PROJECT:

___Water main extension ___Corrosion control ___Filter plant design

___Chlorination station ___Fluoridation station ___Feasibility study

___Distribution storage ___Sewers on watersheds

_X_Other (Specify) Rehabilitation of an old pumphouse.

STATUS:

_X_Plans and specifications have been reviewed.

___Plans and specifications have been reviewed, additional information is necessary to complete review.

___The additional information _____ has been reviewed.

CONCLUSION:

_X_Project is approved and accepted (with conditions).

___Approval pending resubmission of additional information (see comments).

___Evaluation of project cannot be made without additional information (see comments).

___Project is generally supported; however, additional information is requested (see comments).

___Project is not approved (see comments).

COMMENTS:

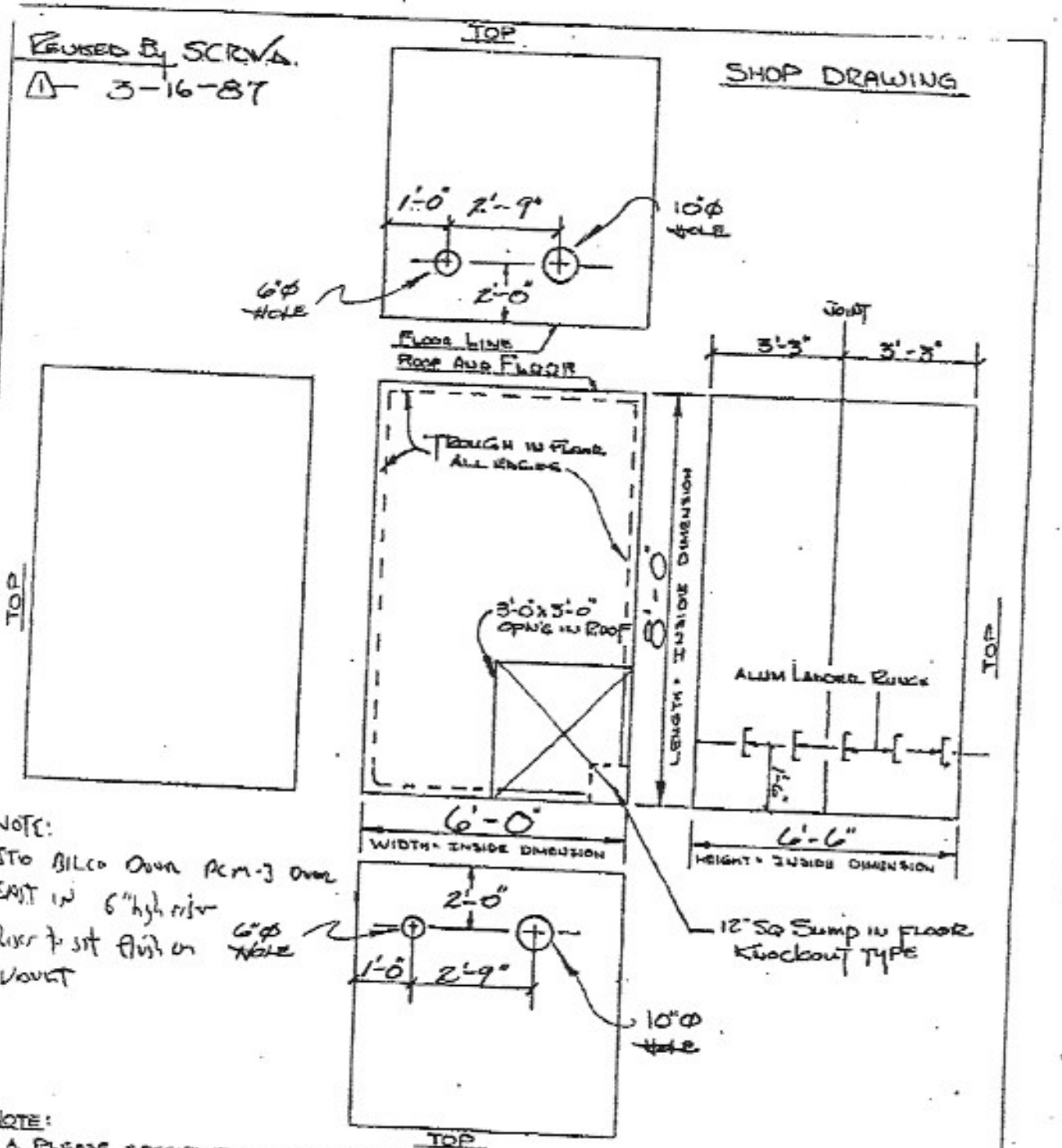
RR/PS/TW/tw
cc: Mark Ludwig, MD, Middlefield DOH
Judith Sartucci, DPHAS

Pamela E. Scully
Senior Sanitary Engineer
Water Supplies Section

Phone: (203) 240-9262
Telephone Device for the Deaf (203) 566-1279
150 Washington Street — Hartford, CT 06106
An Equal Opportunity Employer

REVISED BY SCR'S.
1 3-16-87

SHOP DRAWING



NOTE:
A. PLEASE SPECIFY THE SIZE AND LOCATION OF OPENINGS, KNOCKOUTS, INSERTS OR ANY OTHER DETAILING THAT MAY APPLY TO THIS ITEM.
B. USE SOLID LINES TO DESIGNATE ITEMS LOCATED IN ROOF.
C. USE DOTTED LINES TO DESIGNATE ITEMS LOCATED IN FLOOR.

A. DITULLIO & SONS INC. 539 ORONOQUE ROAD MILFORD CONN 203/878-6511

THICKNESS, ROOF = 6" WALLS = 6" FLOOR = 6" OTHER =
DESIGN FOR STD. = H10 = H20 = X
QUANTITY STD. = H10 = H20 = (1)UNIT
DISCRIPTION WATER METER VAULT REINFORCING
OUTSIDE DIMENSIONS 9'-0" LENGTH X 7'-0" WIDTH X 7'-6" HEIGHT
DATE SUBMITTED 5-31-96 DATE RETURNED PROJECT.
DATE APPROVED APPROVED BY Dundee, CT.

June 21, 1995

SUBJECT: MIDDLEFIELD CT: REVIEW OF THE PLANS AND SPECIFICATIONS FOR THE CONSTRUCTION OF AN UNDERGROUND WELL HOUSE FOR RAINBOW SPRINGS WATER COMPANY.

cc: Middlefield DOH
Judith Sartucci, DPHAS

From: Tom West TW
Sanitary Engineer I
Water Supplies Section

UTILITY: Rainbow Springs Water Co.

ENGINEER: Aqua Treatment & Service Company, Inc.

GENERAL:

Rainbow Springs is a small water system located near Lake Beseck in Middlefield, CT. The system is served by a drilled well located in a pit behind the building at 20 Lakeview Place. Water is pumped from the well with a submersible pump to two small pressure tanks located in the basement of 20 Lakeview Place.

Recently this water company was taken over by Aqua Treatment & Service Co. (ATS) because the owner of 20 Lakeview Place no longer desired to run the system. ATS decided to upgrade the system and move all of the equipment out of the residence at 20 Lakeview Place. The new system will be housed in an underground concrete vault. ATS will perform all related work. The project is scheduled to be completed before the fall of 1995.

PLANS AND SPECIFICATIONS:

1. The area around the existing well pit will be excavated and a new concrete vault will be installed. The vault will measure 13'x 7'x 8.5' and will be equipped with a Bilco hatch in the roof. The hatch will be located directly above the well to allow access to the well.

2. 3 - Well-X-Troll 350 bladder type pressure storage tanks will be located in the new vault. This will increase the available drawdown from 60 gallons to 132 gallons (44 gallons per tank).

3. The new well house will be equipped with lights, heat, sump pump and automatic ventilation.

4. A flow meter and sample taps will be installed.

5. The well house will be equipped with it's own electric service and consumption meter.

6. A yield test will be performed while the work is being completed. For specific well withdrawal rates the minimum required yield test duration is as follows: less than 10 gpm - 18 hours; 10 to 50 gpm - 36 hours and over 50 gpm - 72 hours. For all wells test pumping must be continuous for the entire test period and drawdown must have stabilized for the last 12 hours of the test. The well's yield shall be determined using the lowest pumping rate during the test period, excluding minor pumping rate adjustments of brief duration.

CONCLUSIONS AND RECOMMENDATIONS:

1. Representative weekly meter readings of instantaneous flow rate and total quantity of water must be recorded in accordance with Section 19-13-B102(n) of the Public Health Code.

CONDITIONS OF APPROVAL:

1. All tanks, piping and appurtenances must be disinfected in accordance with AWWA C651, latest revision. In addition, if any work is performed on the well itself, the well must also be disinfected.

2. The pumping capacity of the well must be maintained below 10 gpm due to separating distance from and existing septic system.

3. A copy of the results of the yield test must be submitted to this office upon completion.

4. Bacteriological sampling must be performed upon completion of the new well house. A copy of the test results must be forwarded to this office for our review.

FINAL COMMENT:

The plans and specifications for the new well house at Rainbow Springs Water Co. are herein approved pending compliance with the Conditions of Approval cited above.

EASTERN CT REGIONAL WATER CO., INC.

BACTERIOLOGICAL AND PHYSICAL DISTRIBUTION SAMPLES

RAINBOW SPRINGS

DATE	# OF SAMPLES	# COLIFORM POSITIVE	# E. COLI POSITIVE	# COLOR >15 UNITS	# TURBIDITY >5 NTU	# ODOR >2	
Sep-97	1	0	0	0	0	0	
May-97	1	0	0	0	0	0	
Feb-97	1	0	0	0	0	0	
Dec-96	1	0	0	0	0	0	
Aug-96	1	0	0	0	0	0	
Apr-96	15	2	0	0	0	0	
Jan-96	13	5	0	0	0	0	
Oct-95	1	0	0	0	0	0	
Aug-95	1	0	0	0	0	0	
May-95	1	0	0	0	0	0	
Mar-95	1	0	0	0	0	0	
Nov-94	1	0	0	0	0	0	
Sep-94	1	0	0	0	0	0	
Sep-94	1	0	0	0	0	0	
Jun-94	1	0	0	0	0	0	
Mar-94	1	0	0	0	0	0	
Dec-93	1	0	0	0	0	0	
Mar-93	1	0	0	0	0	0	
Dec-92	1	0	0	0	0	0	
Aug-92	1	0	0	0	0	0	
May-92	1	0	0	0	0	0	
Feb-92	1	0	0	0	0	0	